

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: ) Confirmation No. 5781  
KOYAMA et al )  
Serial No.: 10/535,242 ) Group Art Unit: 1794  
Filed: May 18, 2005 )  
For: FINGERPRINT EASILY ERASABLE FILM )

APPEAL BRIEF

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This appeal is from the Examiner's final rejection dated August 17, 2009.

I. Statement of Real Party of Interest

The real party of interest in the captioned application is KIMOTO CO., LTD. as evidenced by an assignment recorded at reel 021167, frame 0647, in the United States Patent & Trademark Office.

II. Related Appeals and Interferences

To the best knowledge of the undersigned, there is no other appeal, interference or judicial proceeding which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

### III. Status of Claims

All claims currently pending in the application, i.e. claims 1, 3-7 and 10-15, have been finally rejected under 35 USC 103 for obviousness. Claims 2, 8 and 9 have been canceled. Accordingly, the claims on appeal are claims 1, 3-7 and 10-15.

### IV. Status of Amendments

No amendment has been filed subsequent to the final action of July 22, 2009. A response to the final action, without any amendment, was filed November 9, 2009.

### V. Summary of Claimed Subject Matter

Transparent films are conventionally applied to protect the surfaces of screens of television sets, ATM machines and other touch panels (page 1, lines 8-21). One problem with the prior art protective films is that fingerprints adhere to the exposed surface of the film and are "noticeably visible" (page 1, lines 15-21). The prior art approach to alleviation of the problem of adhering fingerprints has been to fabricate the protective films from a material with "a smaller (low) wet tension." See page 1, line 22 to page 2, line 1. However, some applications require a matted surface and a matted surface having a low wet tension has been found to have poor fingerprint erasability (page 2, lines 2-7).

Accordingly, an object of the present invention is to provide a film having a matted surface from which fingerprints may be easily removed (page 2, lines 9-11).

As will be expanded upon in the argument which follows, the present invention offers a unique approach which can be characterized as the opposite of the prior art approach. More Specifically, the present invention is based on the

finding that if a matted surface has a high wet (surface) tension, at least 25mN/m, it allows for easy removal of any fingerprints adhering thereto. See page 2, lines 12-15.

Consistent with the teaching at page 2, lines 12 to 18, claim 1, the only independent claim, recites “[a] fingerprint easily erasible film” and defines the film as having “one surface” meeting the following criteria:

1. the “one surface” is “matted”; See page 3, lines 25-29; page 7, lines 21-29; and page 10, line 5 to page 11, line 1;
2. “a wet tension of 25 mN/m or higher”; See page 2, lines 12-15; page 3, lines 2 and 3; and page 5, lines 7-31; and
3. “a surface roughness of 0.2 to 2.0  $\mu\text{m}$  in terms of ten point mean roughness  $R_z$ ”; See page 3, lines 19-25; page 4, line 7 to page 5, line 6.

Test results reported in applicants’ specification (Table 1 at page 20), for comparative examples 1-3, demonstrate that criteria 2 and 3 are both critical to providing good “fingerprint erasability.”

#### VI. Grounds of Rejection to be Reviewed

1. The Rejection of claims 1, 3-5, 7, 10, 11, 14 and 15 for obviousness under 35 USC 103(a) as being unpatentable over Amimori et al - US Patent 6,559,915 in view of Takahashi et al - US Patent 6,265,133. See section 4 of the final action dated August 17, 2009.

2. The rejection of claims 6, 11 and 13 for obviousness under 35 USC 103(a) as being unpatentable over "Amimori in view of Takahashi as applied above, and further in view of Hasno [sic., Hasuo] et al (U.S. Patent No. 6,716,513)." See section 5 of the final action of August 17, 2009.

## VII. ARGUMENT

### A. The Rejection of claims 1, 3-5, 7, 10, 11, 14 and 15 for obviousness over Amimori et al - US Patent 6,559,915 in view of Takahashi et al - US Patent 6,265,133.

#### 1. The Differences Between the Prior Art and the Claimed Invention.

##### A. Amimori et al

The Examiner relies upon Amimori et al for its disclosure of "a fingerprint easily removable film" (col. 31, lines 17-31) having a surface roughness Rz of 1.0 - 3.0 $\mu$ m (col. 3, line 60), which range overlaps the range of 0.2 - 2.0 for Rz recited by appellants' claim 1. However, as acknowledged by the Examiner in the last line at page 2 of the office action, "Amimori fails to disclose that the surface has a wet tension of 25 mN/m or higher," as further recited by appellants' claim 1.

Amimori et al adopt the conventional approach to providing a film surface from which fingerprints may easily be removed, i.e., use of a film having a low wet tension which tends to repel fingerprints as taught in the paragraph spanning pages 1 and 2 of applicants' specification. Note that the "low refractive index layer" of Amimori et al is the top layer 3 (col. 10, lines 41-42), as shown in Fig. 2 and, therefore, is the layer providing the surface which is touched. At column 13, line 28, to column 14, line 14, Amimori et al teach a preference for silicon and fluorine containing polymers, especially the latter, which are known to be hydrophobic and to

have a very low wet tension, well below the 25 mN/m lower limit of appellants' claim 1.

B. Takahashi et al

The Examiner relies upon the teachings of Takahashi et al for its disclosure of a resin composition which has "fingerprint attachment resistance" (col. 1, line 16) and a "critical surface tension" of "20-40 dyne/cm, preferably 22-37 dyne/cm . . ." One dyne/cm is equal to one mN/m (see "Surface Tension Converter" submitted as attachment #2 with applicants' response of November 9, 2009). According to the Examiner:

"It would have been obvious to one of ordinary skill in the art at the time of the invention to make Amimori's surface with wet tension of 25 mN/m or higher as disclosed by Takahashi in order to make the Amimori's film resistant to fingerprint stains."  
[second paragraph at page 3 of the final action]

Takahashi et al do not disclose either a film having a matted surface or a film having a Rz of 0.2 to 2.0  $\mu\text{m}$ . Note that, in the working examples of Takahashi et al, the film has a thickness of 5  $\mu\text{m}$  (col. 11, lines 22-23), which is considerably greater than the 2.0  $\mu\text{m}$  maximum diameter of the "secondary particles" (col. 10, line 21) which are present in the small amount of 0.53 parts by weight (col. 10, line 20). Compare Fig. 2 of Amimori et al.

2. Amimori et al (the primary reference) teaches away from the allegedly obvious modification.

At column 31, line 17-21, Amimori et al. teach that Sample 21 did not allow for the fingerprint to be "wiped out completely, whereas the case of Sample 24 such stain could easily be wiped out." As taught in column 29, lines 32-38, Sample 24 was the "low refractive index layer" and was prepared from a coating liquid A-1

which was based on a fluoropolymer (column 28, lines 27-32), whereas Sample 21, as taught at column 29, lines 13-28, was prepared using a coating liquid B-1 described as "a UV-curable hard coat material." At column 31, lines 20 and 21, at Amimori et al. conclude: "Thus, the use of a fluorine containing compound for a low refractive index layer is preferable." The fluorocarbon polymers, such as Teflon, are well noted for their very low surface tension. Thus, Amimori et al. adopt the conventional approach for providing the film surface from which fingerprints may easily be removed, i.e. a surface with low wet tension.

In the paragraph bridging pages 4 and 5 of applicants' response dated May 27, 2009, applicants argued:

"Firstly, Amimori et al. teach away from such a substitution in their teaching of a preference for use of a fluoropolymer for the low refractive index layer, i.e. a preference for a material with a very low wet tension."

In response, at page 5 of the final action, the Examiner writes: "First, Applicant has not provided any evidence that Amimori's surface tension is 'very low' or what constitutes 'very low'." That fluorocarbon polymers are hydrophobic (water repellent), meaning that they show a very low wet (surface) tension, is well known and there should not be any burden on applicants to establish that which is well known. Nevertheless, applicants submitted, as "attachment #1" with their response filed November 9, 2009, a printout from [www.fibre2fashion.com](http://www.fibre2fashion.com) entitled "Fluoro carbons in textile finishing," which reads:

"Fluorocarbons are organic compounds consisting [of] perfluorinated carbon chain. They tend to decrease the surface tension of the substrate. Fluorocarbons generally lower the surface tensions by forming a thin film of coating around the fiber. They usually are cationic in nature but can also be non-ionic

and anionic. Some useful fluorocarbons are perfluoroalkyl acrylate copolymers and their fundamental structure resembles that of acrylic resins. The surface tension of the fluorocarbon water repellent agent is extremely small, about 10 dyne/cm. Therefore, water repellency can be attained and a water drop does not adhere on the treated cotton fiber. Industry started using water repellents based on paraffin, silicone and fluorocarbons. Comparing the three systems, it was found that those belonging to the paraffin type have low water repellent effect at the initial stage and no durability to washing. Those of the silicone type were better than the paraffin-based products but were poor oil repellents. The fluorocarbon-based products were found to endow excellent oil and water repellency." [Emphasis added]

10 dyne/cm equals 10 mN/m. See "Surface Tension Converter" submitted as "attachment #2" with applicants' response of November 9, 2009.

2. The Allegedly Obvious Modification of Amimori et al would change the Principle of Operation of the Reference.

At pages 6 and 7 of the previous response attorney for applicant also argued that the allegedly obvious modification of Amimori et al would change (eliminate) the mechanism (operative principle), i.e., low wet (or "surface") tension, by which the articles of Amimori et al allow removal of fingerprints from a surface. In answer to this argument, at the top of page 6 of the final rejection, the Examiner provides two different rebuttals:

"[1] As stated above Applicant has not provided any evidence that the materials used in Amimori have a 'very low' wet tension. [2] Also, Applicant has not shown how the use of a higher wet tension material in Amimori would alter the invention of Amimori."

The first point raised by the Examiner, regarding burden of proof, has already been addressed above. The Examiner's second point seems to ignore the data at column 31 of Amimori et al on which the Examiner originally relied. The results of tests reported by Amimori et al at column 31, lines 17-21, demonstrate one reason why

the extremely low surface tension fluorine-containing is preferred as taught at column 13, lines 58-65. Further evidence is the consistency between the teaching in the paragraph spanning pages 1 and 2 of applicants' specification, the data at column 31, lines 17-21 of Amimori et al and the teaching at column 13, lines 58-65 of Amimori et al.

3. The Examiner has given no legally sufficient reason why one skilled in the art would have combined the teachings of Amimori et al and Takahashi et al.

In *KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727, at \_\_\_, 82 USPQ2d 1385, at 1396 (2007), the U.S. Supreme Court, stated:

“Often it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.”

The Examiner has recognized that a *prima facie* case for obviousness requires a logical reason for combining the reference teachings. In this connection, in the earlier office action dated February 27, 2009, the Examiner gave a reason based on an erroneous interpretation of the data of Table 2 of Takahashi et al. The Examiner interpreted Table 2 of Takahashi et al as teaching “that if the wet tension is below 20 mN/m (comparative examples) the coating does not resist fingerprints,” quoting from page 3 of the office action of February 27, 2009. Based on that interpretation, the Examiner concluded:

“It would have been obvious to one of ordinary skill in the art at the time of the invention to make Amimori's surface with wet tension of 25 mN/m or higher as disclosed by Takahashi in order to make the Amimori's film resistant to fingerprint stains.”

[Emphasis added]

As applicants noted in response, Takahashi et al teach a correlation between ease of removal of fingerprints and the presence of silica particles in the coating film (column 6, lines 15-23), but not between ease of removal of fingerprints and high wet tension as had been supposed by the Examiner. In other words, Takahashi et al attribute ease of fingerprint removal to the presence of silica particles in the composition. Further, in Table 1 of Takahashi et al comparative examples 1 and 4 were the only examples of compositions not containing particulate silica D-1 and were the only two compositions which showed "clear fingerprints" rated "X". See column 12 and Table 2 of Takahashi et al. Attorney for applicants also noted that, if the Examiner's interpretation was correct, then comparative example 4, with a critical surface tension of 25, should have given better results for fingerprint removal than examples 5, 6 and 7 and comparative examples 2 and 3, all of which had lower values for critical surface tension. However, the product of comparative example 4 failed the fingerprint removal test, whereas the samples of the aforementioned five examples, with lower surface tension, passed that test.

In the final rejection, the Examiner appears to accept the foregoing argument where she writes:

"Furthermore, even if Takahashi does not suggest any correlation between a high wet tension (surface tension) and ease of removal of fingerprints, the fact remains that Takahashi does the having [sic., have] a coating with a wet tension of 25 mN/m or higher which makes the coating resistant to fingerprint stains."

However, if the Examiner concedes lack of the correlation in Takahashi et al between high wet tension and ease of fingerprint removal, the Examiner's previously stated reason for the reference combination is lost. What now is the reason for the

combination? The mere fact that certain embodiments of Takahashi et al do have high critical surface tension and ease of fingerprint removal exist is not a reason for substitution of a high wet tension material in Amimori et al, especially given (1) the above-noted teachings and data of Takahashi et al which evidence that the high wet tension is due to the presence of the silica particles and independent of surface tension and (2) the above-noted teachings of Amimori et al stating a preference for a very low wet tension material as the outermost layer.

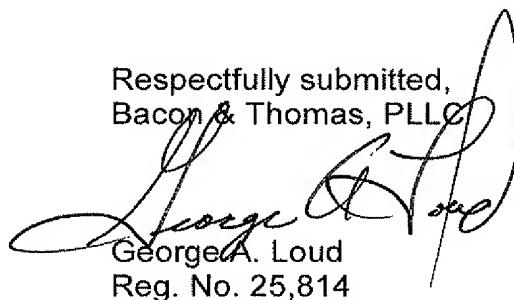
B. The rejection of claims 6, 11 and 13 for obviousness over Amimori et al in view of Takahashi et al and further in view of Hasuo et al.

The reasons given above, for reversal of the rejection of claims 1, 3-5, 7, 10, 11, 14 and 15, are equally applicable to the rejection of claims 6, 11 and 13 for obviousness, as stated in section 5 of the office action. Hasuo et al (US 6,716,513) is cited for its disclosure of two different size matting agents. Hasuo et al is directed to a hydrophilic coating and is not relevant to the issue of alleged obviousness of substituting a material providing a wet tension of 25 mN/m or more for the "very low" wet tension (hydrophobic) material of Amimori et al. Further, because Hasuo et al is directed to a hydrophilic coating, Hasuo et al is neither relevant to nor properly combinable with the teachings of Amimori et al relating to use of silicon and fluorine containing resins as a low refractive index layer 3.

CONCLUSION

In conclusion, it is respectfully submitted that the record here does not establish *prima facie* case for obviousness of any of the claims presented on appeal and, accordingly, the rejections set forth in the final rejection should be reversed.

Respectfully submitted,  
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The pending claims, presented on appeal, are as follows.

1. A fingerprint easily erasable film, wherein one surface of the film is matted, and the matted surface shows a wet tension of 25 mN/m or higher, wherein the matted surface has a surface roughness of 0.2 to 2.0  $\mu\text{m}$  in terms of ten point mean roughness Rz.

3. The fingerprint easily erasable film according to claim 1, wherein the film as a whole has a haze of 1.5 to 35.0%.

4. The fingerprint easily erasable film according to claim 1, which comprises a substrate and a resin layer provided on the substrate and has the matted surface as a surface of the resin layer.

5. The fingerprint easily erasable film according to claim 4, wherein the resin layer is formed from a coating material containing an ionizing radiation curable resin.

6. The fingerprint easily erasable film according to claim 4, wherein the resin layer contains two kinds of matting agents having different average particle diameters.

7. The fingerprint easily erasable film according to claim 4, wherein the resin layer contains silica particles as a matting agent.

10 . The fingerprint easily erasable film according to claim 3, which comprises a substrate and a resin layer provided on the substrate and has the matted surface as a surface of the resin layer.

11. The fingerprint easily erasable film according to claim 5, wherein the resin layer contains two kinds of matting agents having different average particle diameters.

12 . The fingerprint easily erasable film according to claim 5, wherein the resin layer contains silica particles as a matting agent.

13 . The fingerprint easily erasable film according to claim 6, wherein the resin layer contains silica particles as a matting agent.

14. The fingerprint easily erasable film according to claim 4, wherein the resin of the resin layer has a refraction index of 1.46 to 1.52.

15. The fingerprint easily erasable film according to claim 10, wherein the resin of the resin layer has a refraction index of 1.46 to 1.52.

## **IX. Evidence Appendix**

- 1. "Fluoro carbons in textile finishing," from www.fibre2fashion.com, submitted as "attachment #1" with applicants' response of November 9, 2009.**
- 2. "Surface Tension Converter" submitted as "attachment #2" with applicants' response of November 9, 2009.**

**X. Related Proceedings Appendix**

**None**